

What is claimed is:

1. An expression control sequence which controls expression of a target gene linked downstream of the expression control sequence depending on an intracellular concentration of an amino acid,

wherein in a bacterium which harbors a DNA construct comprising the expression control sequence, a promoter linked upstream of the expression control sequence and the target gene linked downstream of the expression control sequence, frequency of termination in the expression control sequence, of transcription starting from the promoter is lowered by increase of an intracellular concentration of an amino acid, whereby expression of the target gene increases.

2. The expression control sequence according to claim 1, which comprises a region coding for a leader peptide comprising said amino acid and a ρ independent terminator, wherein when translation of the leader peptide stops at codon of said amino acid in the course of the translation in case of starvation of said amino acid, a base pairing structure of the ρ independent terminator is formed in a transcript of the expression control sequence, whereby the frequency of termination in the expression control sequence, of the transcription increases.

3. The expression control sequence according to claim 2, which comprises an odd number of not less than

3, of segments, wherein each of the segments can form a base paring structure together with its adjacent segment, and wherein in the transcript of the expression control sequence, when a segment or segments other than terminal segments each form a base paring structure with one of its two adjacent segments, the segment or segments each do not form a base paring structure with the other of the two adjacent segments; a first segment at an upstream terminal overlaps with the region interacting with the ribosome translating the leader peptide; a second segment adjacent to the first segment forms a base paring structure with a third segment adjacent to the second segment in the course of the translation of the leader peptide; and a base paring structure formed from the downstream terminal segment and its adjacent segment is the base paring structure of the p-independent terminator.

4. The expression control sequence according to claim 3, wherein the first segment overlaps with codon of the amino acid in the leader peptide.

5. The expression control sequence according to claim 3 or 4, wherein the number of the segments is 5.

6. The expression control sequence according to any of claims 3 to 5, wherein the sequence of each segment or a part thereof and the sequence of the adjacent segment or a part thereof constitute an inverted repeat sequence.

7. The expression control sequence according to any of claims 2 to 6, wherein the ρ -independent terminator is capable of functioning in a bacterium belonging to the genus *Escherichia*.

5 8. The expression control sequence according to claim 7, which comprises five segments an1 to an5 in order from an upstream side, wherein the segments an1 and an2, and a coding region for the leader peptide are derived from a sequence of an attenuator of a tryptophan
10 operon of *Escherichia coli*, the segments an4 and an5 are derived from a sequence of an attenuator of a histidine operon of *Escherichia coli*, and the segment an3 is derived from a combination of the sequences of the attenuators of the tryptophan operon and the histidine
15 operon.

9. The expression control sequence according to claim 8, the leader peptide has been modified to contain not less than 2 of tryptophan residues.

20 10. A method for controlling an expression of a target gene, comprising the steps of:

cultivating a bacterium harboring a DNA construct comprising the expression control sequence as defined in any of claims 1 to 9, a promoter linked upstream of the expression control sequence and the target gene linked
25 downstream of the expression control sequence in a culture medium, and

changing an intracellular concentration of an

amino acid on which expression control by the expression control sequence depend, to control expression of the target gene.

11. A method for producing a target substance
5 comprising the steps of cultivating a bacterium capable of producing the substance to produce the substance and collecting the substance,

wherein the bacterium harbors a DNA construct comprising the expression control sequence as defined in
10 any of claims 1 to 9, a promoter linked upstream of the expression sequence and a target gene which has relationship to production of the target substance and is linked downstream of the expression control sequence, and an intracellular concentration of an amino acid on
15 which expression control by the expression control sequence depend, is changed to control expression of the target gene.

12. The method according to claim 11, wherein
the intracellular concentration of the amino acid is
20 changed by synthesis or degradation of the amino acid by the bacterium.

ABSTRACT OF THE DISCLOSURE

An expression control sequence which controls expression of a target gene linked downstream of the expression control sequence depending on an
5 intracellular concentration of an amino acid,
wherein in a bacterial cell which harbors a DNA construct comprising the expression control sequence, a promoter linked upstream of the expression control
sequence and the target gene linked downstream of the
10 expression control sequence, frequency of termination in the expression control sequence, of transcription starting from the promoter is lowered by increase of an intracellular concentration of an amino acid, whereby
expression of the target gene increases.